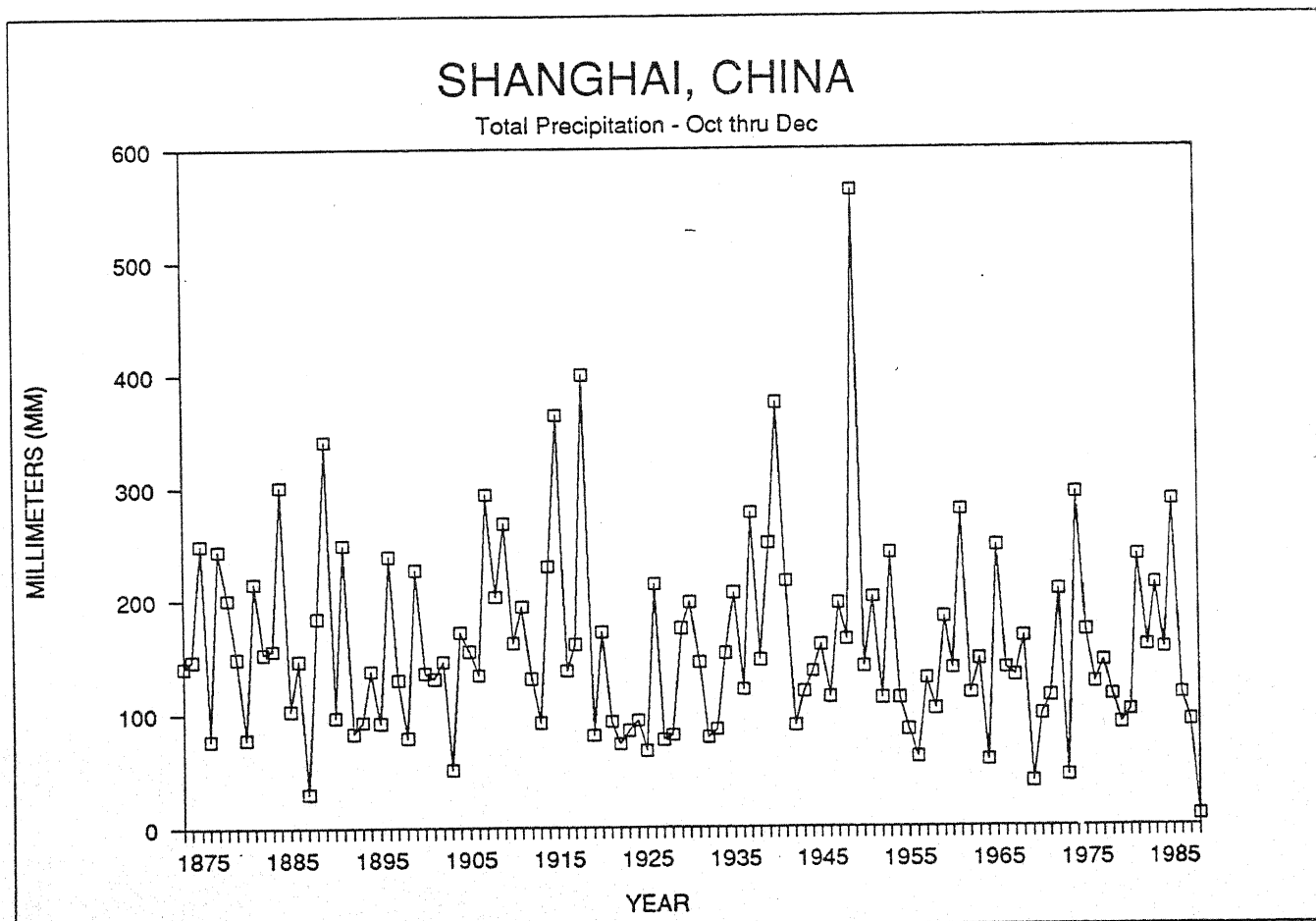


WEEKLY CLIMATE BULLETIN

No. 88/53

Washington, DC

December 31, 1988



THE LAST THREE MONTHS OF 1988 WERE THE DRIEST ON RECORD IN SHANGHAI, CHINA. PRIOR TO 1988, THE DRIEST YEAR FOR THIS PERIOD WAS 1887 WHEN 30mm (1.18 inches) OF PRECIPITATION WAS OBSERVED. SHANGHAI RECEIVED 9.1mm (0.36 inches) FOR THIS PERIOD OF 1988, ONLY 6% OF NORMAL. FOR FURTHER DETAILS OF THE DRYNESS IN EASTERN ASIA, SEE THE SPECIAL CLIMATE SUMMARY IN THIS BULLETIN.

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF DECEMBER 31, 1988

[Approximate duration of anomalies is in brackets]

1. Northwestern Canada and Eastern Alaska:

ABNORMALLY MILD WEATHER PERSISTS.

Unusually mild conditions, with temperatures approaching 15.5°C (27.9°F) above normal, were reported in the region [3 weeks].

2. Argentina:

DRYNESS REMAINS.

Little or no precipitation fell in northern Argentina during the past week as very dry weather continued [27 weeks].

3. Central Europe:

WETNESS DIMINISHES.

Light precipitation, generally less than 17.0 mm (0.67 inches), was reported in the region last week as wet weather eased [Ending at 5 weeks].

4. Greece:

COLD SPELL CONTINUES.

Cold weather prevailed over much of Greece with temperatures as much as 6.3°C (11.3°F) below normal [3 weeks].

5. Middle East:

UNUSUAL SNOWSTORM.

Heavy snow, up to 30.5 cm (12 inches), fell in Jordan, Israel, and Lebanon as a rare winter storm struck the area [Episodic Event].

6. Siberia:

MILD CONDITIONS LINGER.

The late autumn and early winter mild regime, with temperatures reaching 18.6°C (33.5°F) above normal, persisted across Siberia [12 weeks].

7. Taiwan and Eastern China:

RAINS BRING RELIEF.

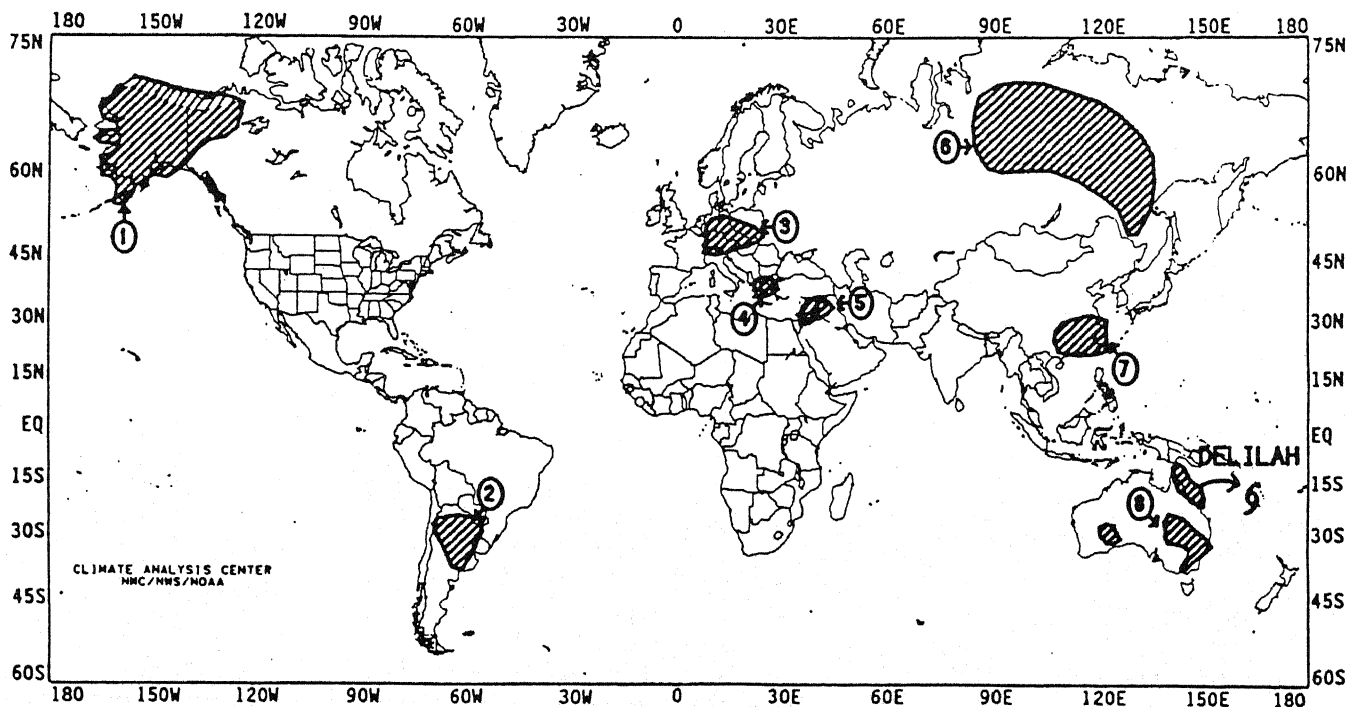
Heavy precipitation, up to 226.8 mm (8.93 inches), eased the dryness in Taiwan and on the southeastern coast of China; however, little or no precipitation was reported in the interior of southeastern China last week [14 weeks].

8. Australia:

WET SPELL PROLONGED.

As much as 171.2 mm (6.74 inches) of rain occurred in parts of Queensland with lesser amounts observed elsewhere in Australia as the wet weather pattern continued [9 weeks].

(NOTE: Text precipitation amounts and temperature departures are this week's values).



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF DECEMBER 25 THROUGH DECEMBER 31, 1988.

Winter storms occurred in northern Utah and the western Great Lakes. Heavy snow, up to 24 inches, fell in eastern Salt Lake City and a foot of snow paralyzed Chicago's O'Hare Airport. Las Vegas reported snow on the ground. A strong cold front brought very high winds to the Middle Atlantic States.

According to River Forecast Centers, heavy precipitation (up to 16 inches) occurred on the Pacific Northwest coast and the Coastal Range from northern California to Washington (see Table 1). Record precipitation for one day, 2.70 inches, was observed in Astoria, Oregon. Heavy precipitation (up to 5.3 inches) also fell in the south central states from Louisiana northeastward to eastern Tennessee and southwestern Indiana. The greatest rainfall amounts, over 4 inches, fell in northeastern Louisiana and west central Mississippi. Moderate precipitation was observed in the Cascades and the northern Sierra Nevada, across the eastern Plains from North Dakota and eastern Texas to Ohio and Michigan and from southern Louisiana to North Carolina. Little or no

precipitation fell across southern California, most of the Intermountain Region and High Plains, and the East Coast from Florida to New England.

A deep trough of low pressure anchored over the Rockies continued to bring unseasonably mild air to most of the East and Southeast. Unusually warm weather, with temperatures 6°F or more above normal occurred across the southeastern United States where several stations broke or tied daily maximum temperature records. The greatest positive temperature departures occurred in central Florida and in southern Mississippi and southeastern Louisiana (see Table 2). Further north, temperatures averaged up to 28°F above normal as mild weather persisted in Alaska for the fourth consecutive week. Below normal temperatures dominated the western half of the country and the northern Plains. The greatest negative departures (around 15°F) were reported in most of Nevada and adjacent parts of Utah, Oregon, and Idaho (see Table 3).

TABLE 1. Selected stations with two or more inches of precipitation for the week.

Station	Amount(In)	Station	Amount(In)
Hilo/Lyman, HI	9.48	Jackson, TN	2.67
McComb, MS	5.44	Chattanooga, TN	2.59
Meridian, MS	4.90	Columbus AFB, MS	2.57
Quillayute, WA	4.45	Adak, AK	2.51
Greenwood, MS	4.04	Memphis NAS, TN	2.47
Monroe, LA	3.92	Port Arthur, TX	2.34
Astoria, OR	3.72	Meridian NAS, MS	2.32
North Bend, OR	3.31	Knoxville, TN	2.28
Yakutat, AK	3.15	Tuscaloosa, AL	2.22
Montgomery, AL	3.12	Blytheville AFB, AR	2.18
Muscle Shoals, AL	3.06	Crossville, TN	2.18
Huntsville, AL	2.89	Valdez, AK	2.17
Eureka, CA	2.88	Shreveport, LA	2.14
Columbus, GA	2.86	Jackson, MS	2.14
Olympia, WA	2.83	Palacios, TX	2.06
Memphis, TN	2.80	Evansville, IN	2.04
England AFB, LA	2.75	Cape Girardeau, MO	2.03
Paducah, KY	2.73	Kodiak, AK	2.02
Jonesboro, AR	2.68	Tacoma/McChord AFB, WA	2.01

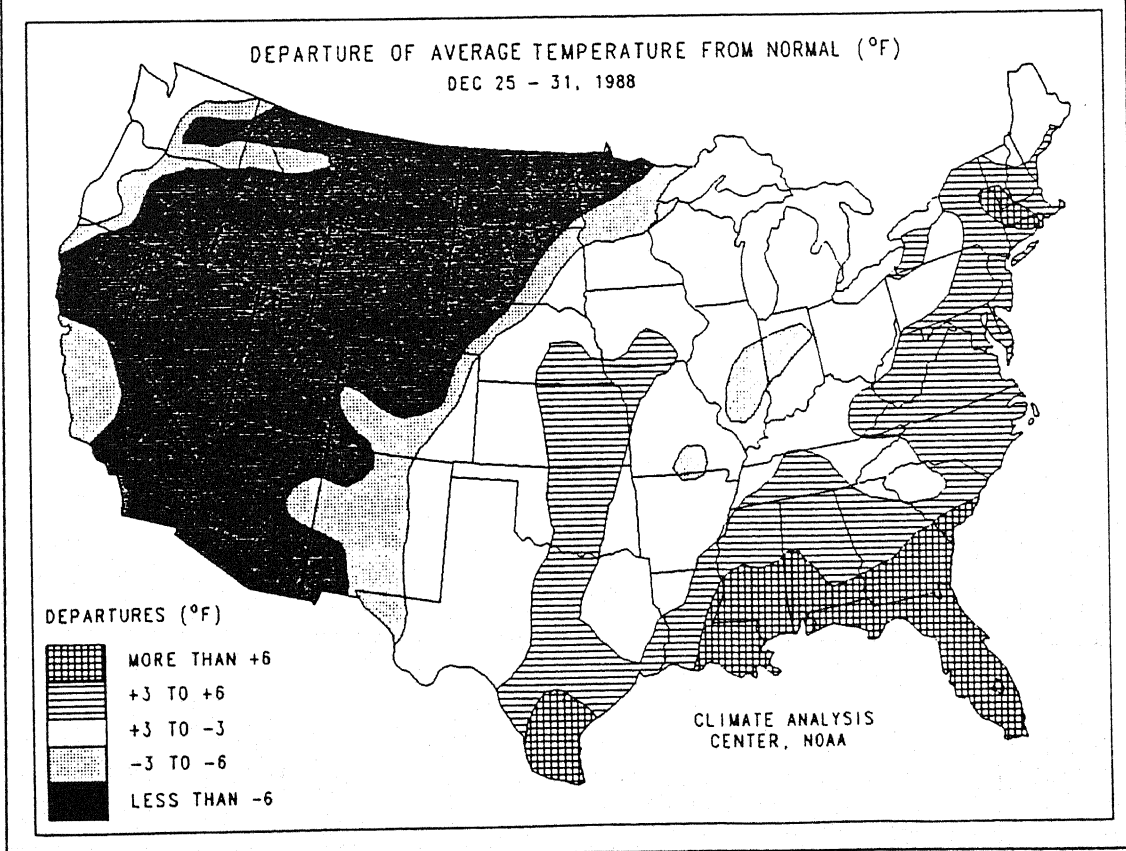
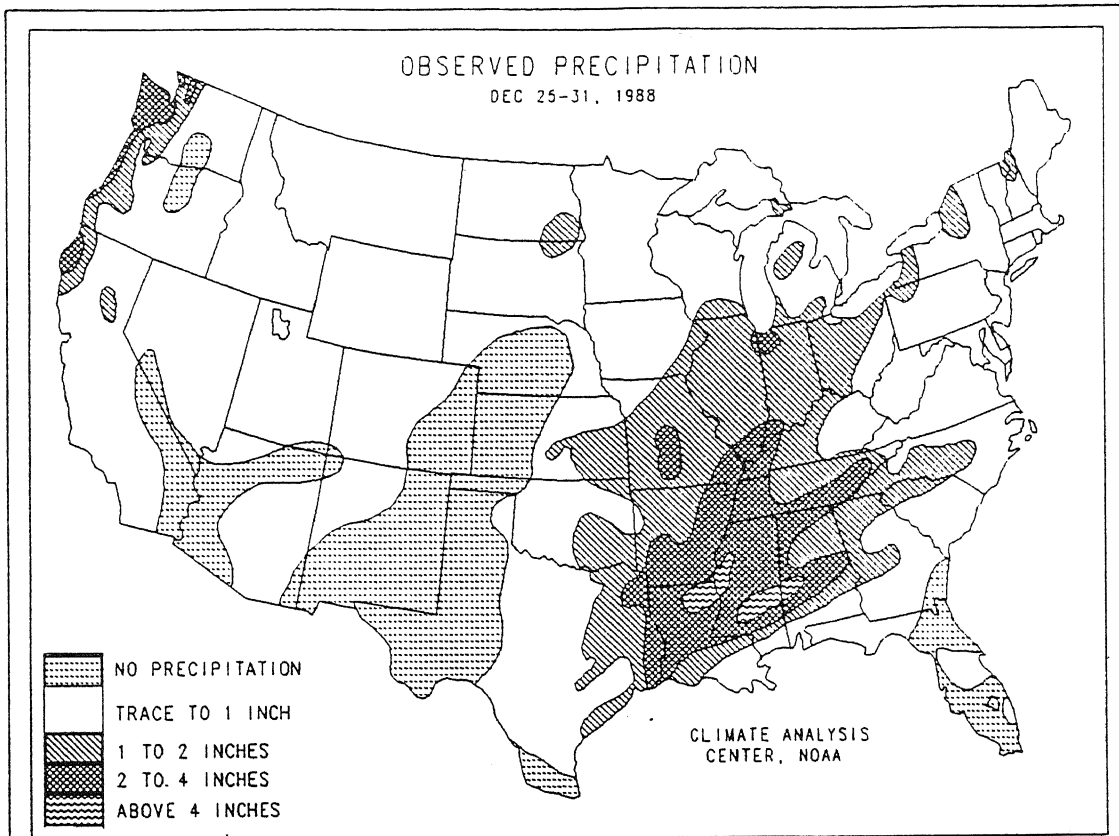
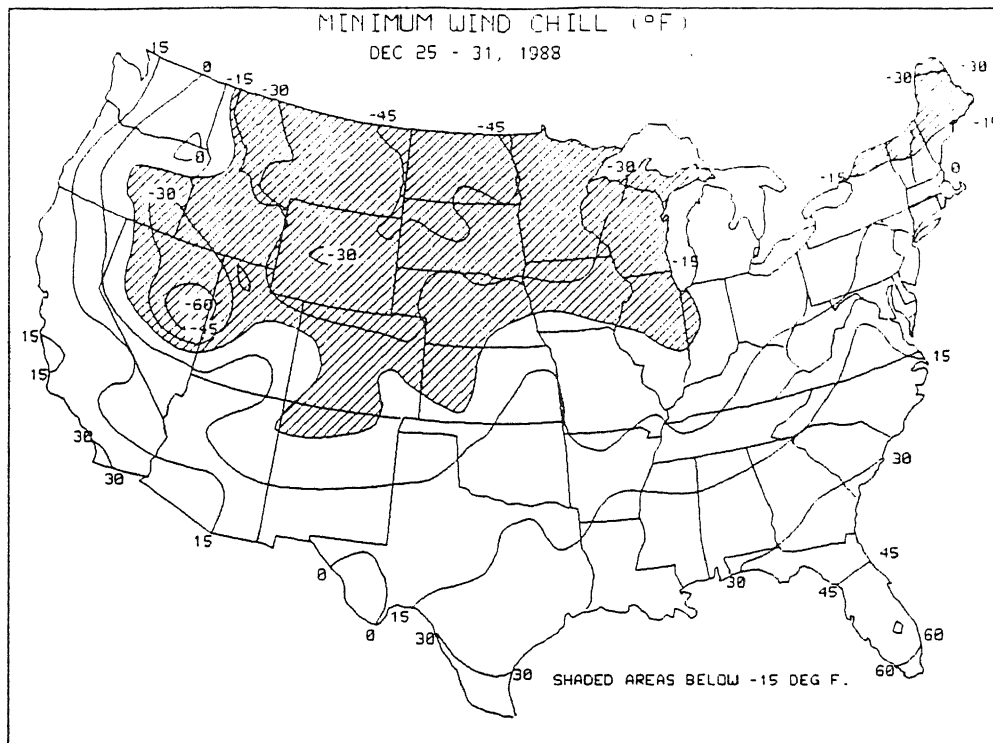


TABLE 2. Selected stations with temperatures averaging 9.0°F or more ABOVE normal for the week.

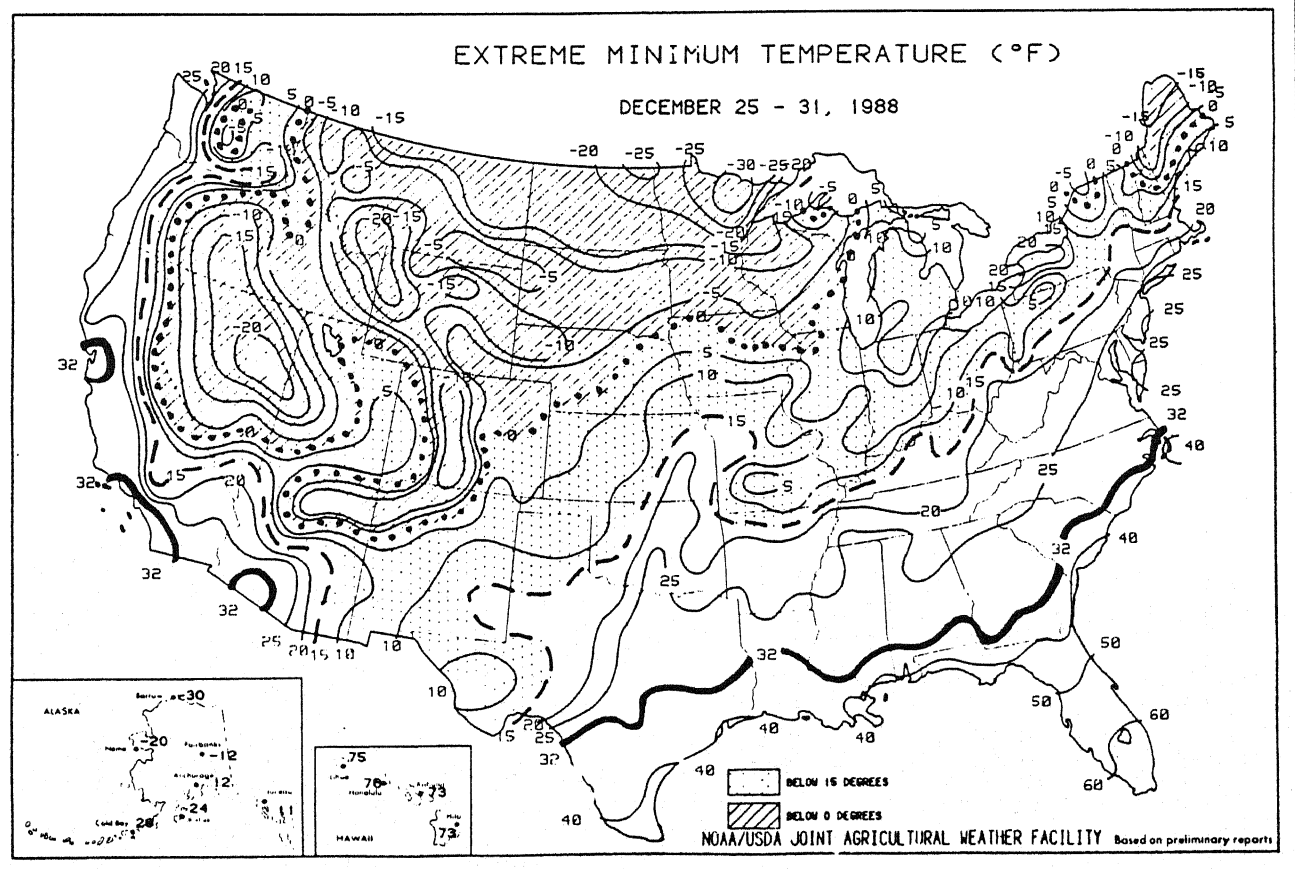
Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
McGrath, AK	+27.8	16.0	Barter Island, AK	+12.7	-2.1
King Salmon, AK	+24.0	34.6	Homer, AK	+11.8	32.5
Bethel, AK	+23.4	26.6	Tampa, FL	+10.7	70.7
Unalakleet, AK	+22.8	23.1	McAllen, TX	+10.6	69.7
Iliamna, AK	+19.9	32.1	Anchorage, AK	+10.3	22.5
Kotzebue, AK	+18.4	13.2	Gulkana, AK	+10.2	1.3
Fairbanks, AK	+17.8	5.1	Keesler AFB, MS	+9.9	62.5
Bettles, AK	+17.4	7.1	Orlando, FL	+9.5	69.8
Kenai, AK	+15.6	25.4	Daytona Beach, FL	+9.5	67.7
Big Delta, AK	+14.3	7.4	Baton Rouge, LA	+9.5	61.0
Nome, AK	+13.8	17.2	Northway, AK	+9.1	-11.8
Talkeetna, AK	+12.8	20.2	Fort Myers, FL	+9.0	72.6

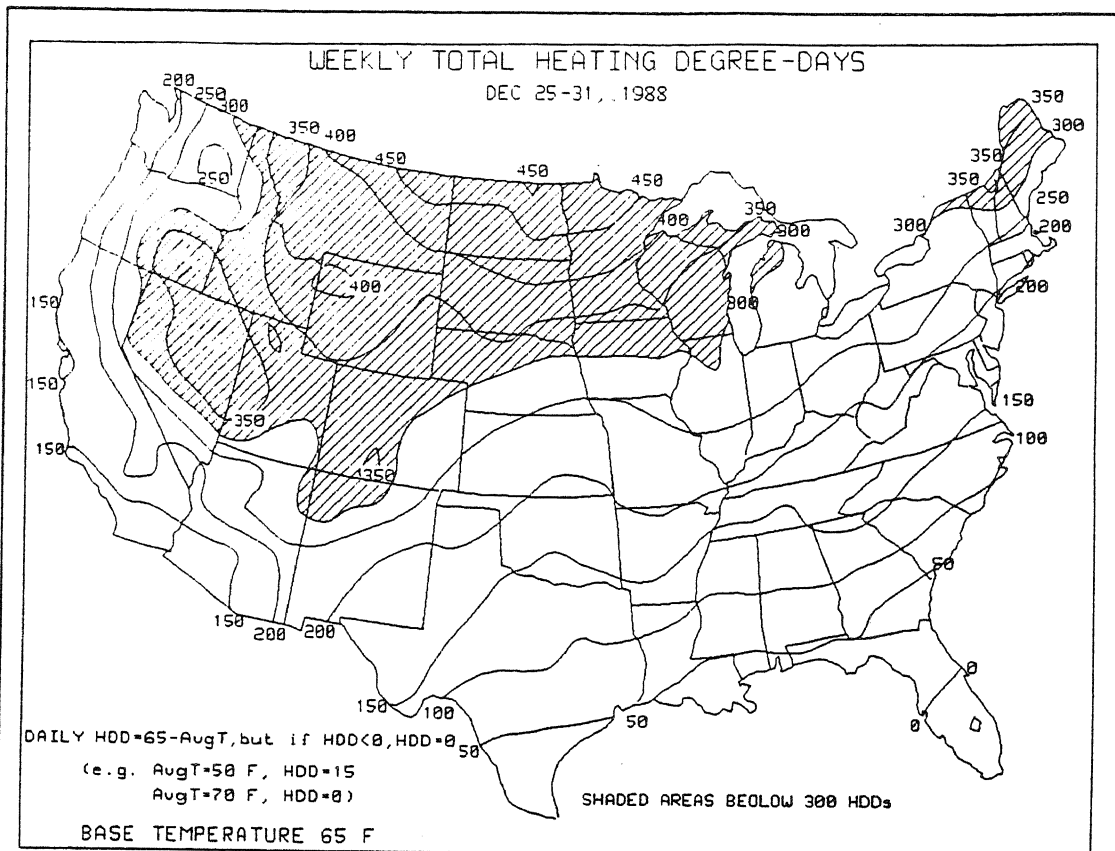
TABLE 3. Selected stations with temperatures averaging 9.0°F or more BELOW normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
Burns, OR	-16.4	9.8	Salt Lake City, UT	-10.5	17.9
Ely, NV	-15.9	8.6	Daggett, CA	-10.5	37.0
Elko, NV	-15.7	8.5	Havre, MT	-10.3	5.1
Winnemucca, NV	-15.1	14.1	Rapid City, SD	-10.2	13.1
Cedar City, UT	-14.7	14.7	Bozeman, MT	-9.9	9.3
Boise, ID	-12.9	17.2	Farmington, NM	-9.9	19.4
Glasgow, MT	-12.4	-0.1	Tucson, AZ	-9.7	41.1
Miles City, MT	-12.2	5.4	Grand Forks, ND	-9.6	-3.8
Pocatello, ID	-12.2	12.3	Casper, WY	-9.6	14.2
Reno, NV	-12.2	19.0	Billings, MT	-9.6	14.7
Redding, CA	-11.8	34.3	Denver, CO	-9.6	21.2
	-11.5	8.0	Davis-Monthan AFB, AZ	-9.5	40.3
	-11.5	-0.5	Burley, ID	-9.2	18.1
	-11.3	9.5	Prescott, AZ	-9.2	26.7
	-11.2	-1.2	Imperial, CA	-9.2	45.6
	-10.6	4.0	Jamestown, ND	-9.1	-0.3
	-10.6	7.1	Helena, MT	-9.1	11.6
	-10.5	5.1			

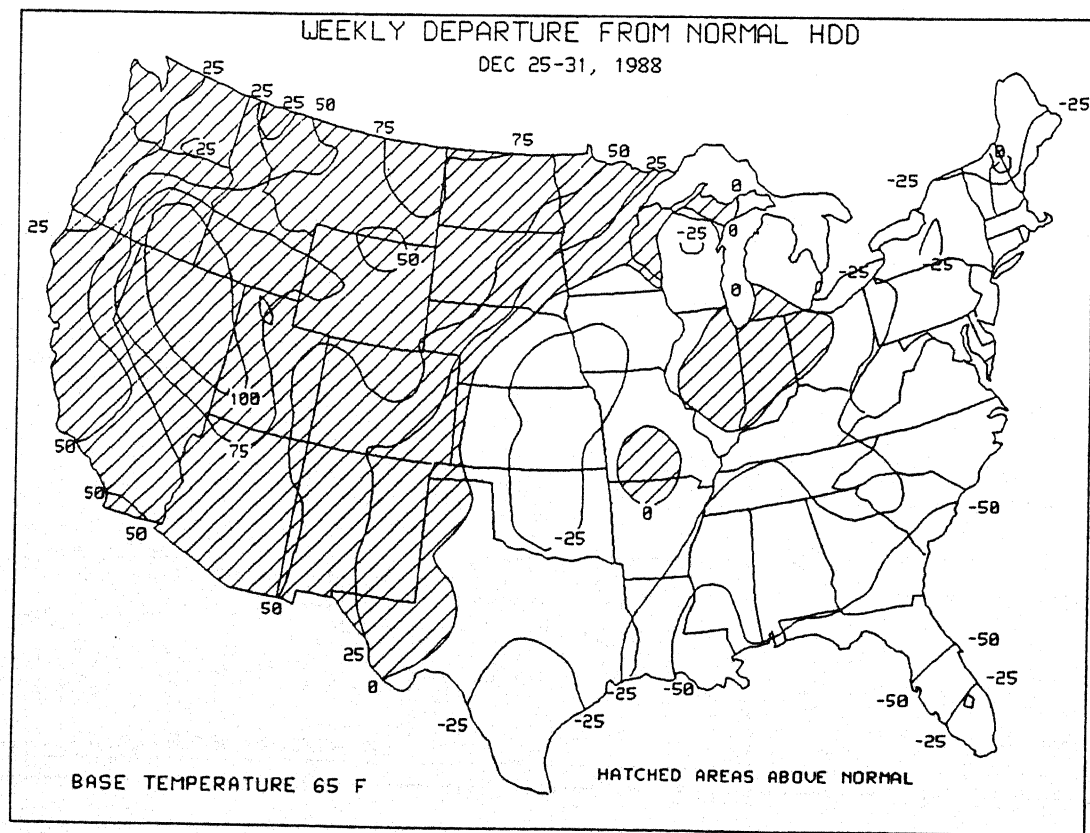


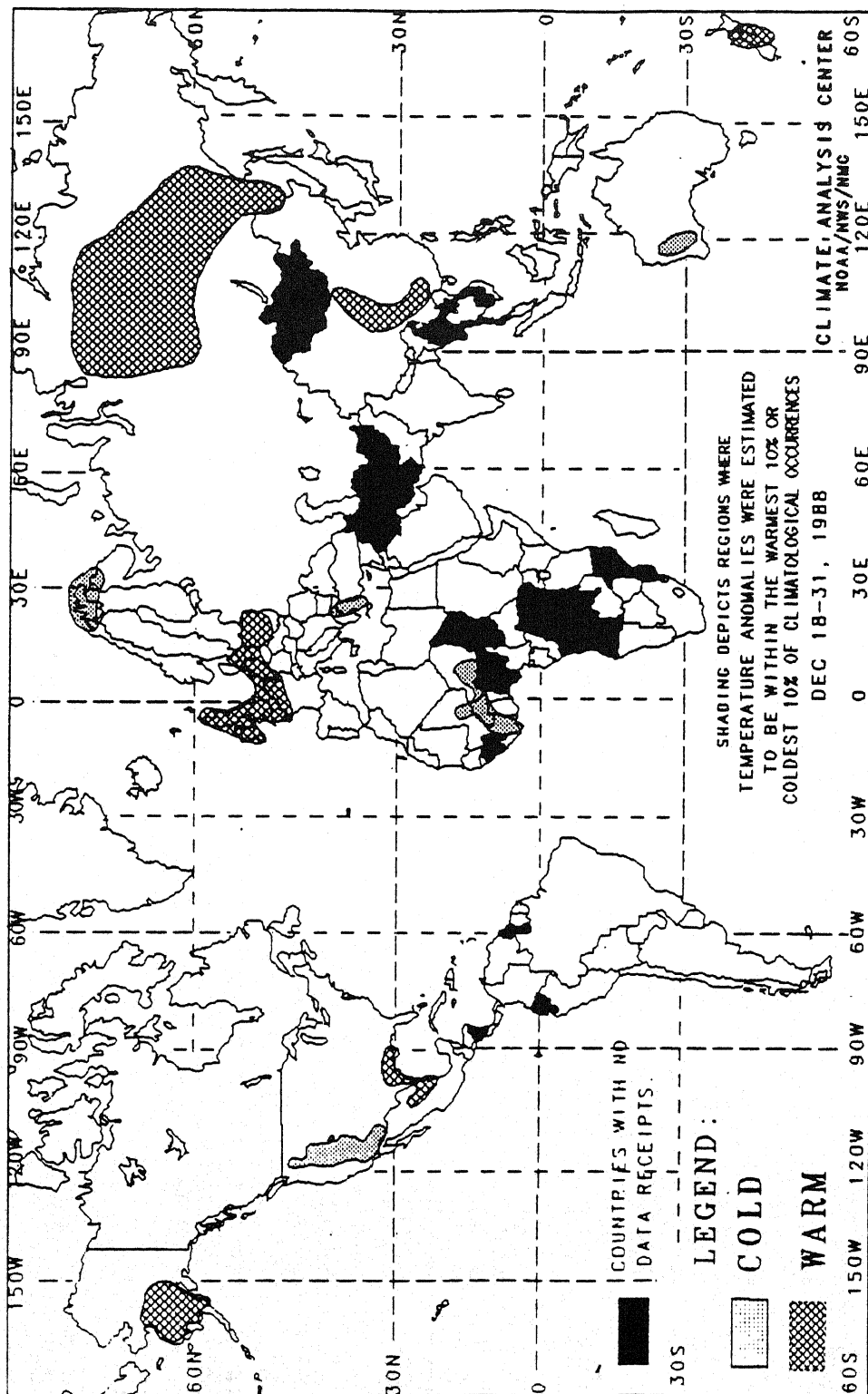
Cold air penetrated the Intermountain West and continued to invade the north central states. Wind chills below -45°F occurred in east central Nevada and in North Dakota, eastern Montana, northwestern South Dakota, and northeastern Wyoming.





Heating usage remained relatively low in the Southeast where milder weather prevailed (top); however, weekly heating demand increased sharply in the West (bottom) as colder air invaded the region.





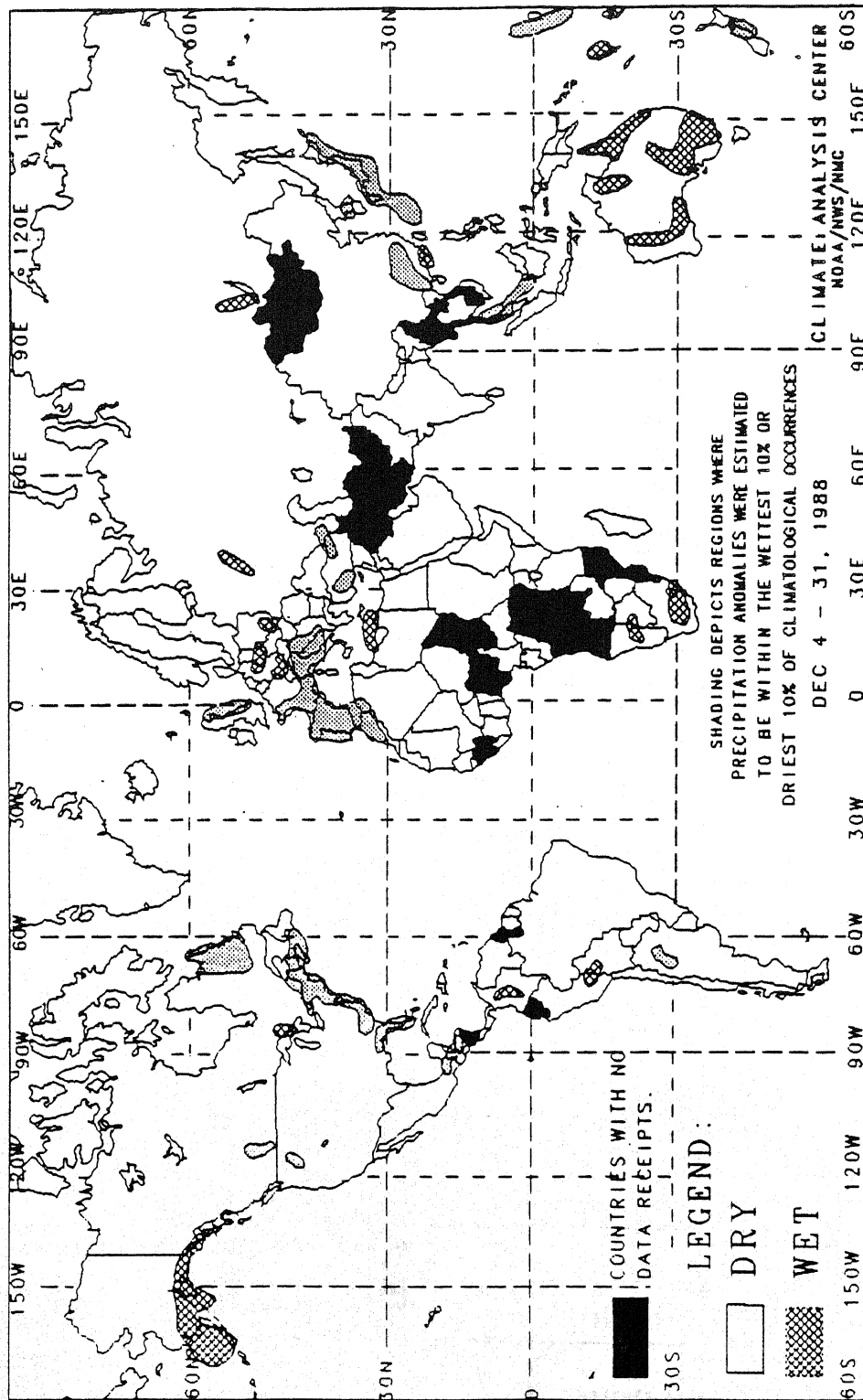
The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

EXTREMELY DRY CONDITIONS HAVE AFFLICTED MUCH OF EASTERN CHINA.

Since October 1, 1988, many areas of eastern China have experienced a lack of significant precipitation. Earlier in the year, violent weather and torrential rains hit portions of the country while other parts reported severe drought (see Weekly Climate Bulletin No. 88/22 dated May 28, 1988). Normally, the autumn months signal the commencement of the dry season which climaxes during the winter months (December-February). By March or April, precipitation usually increases and reaches a peak in the late Spring or early Summer. Precipitation totals generally decrease from south to north and from east to west.

During the past three months, meager amounts of rain (under 50 mm), even for the autumn months, fell on the coastal provinces of Zhejiang and southern Jiangsu and the provinces of Anhui, Jiangxi, Hunan, and Hubei to the west (see Figure 1). Less than 20 mm of precipitation was recorded in the northern provinces of Shanxi, Shaanxi, Hebei, and Shandong, but normal fall precipitation amounts are substantially lower as compared to the southern provinces.

Less than half the normal precipitation was measured from Guizhou and northern Guangxi provinces eastward to the coast, while farther north, abnormally dry weather covered northern Gansu and Nei Mongol eastward to the Yellow Sea (see Figure 2). Precipitation deficits for the period have ranged from 25-50 mm in the northern areas, 50-100 mm in the central regions, and up to 198 mm in northern Guangxi province in the south (see Figure 3). In contrast, excess precipitation has been observed in extreme southern China (Guangdong and southern Guangxi) and in west-central China (Gansu). Based upon climatology, the prospects for heavy precipitation in the near future appears unfavorable with the onset of the normally dry winter months.

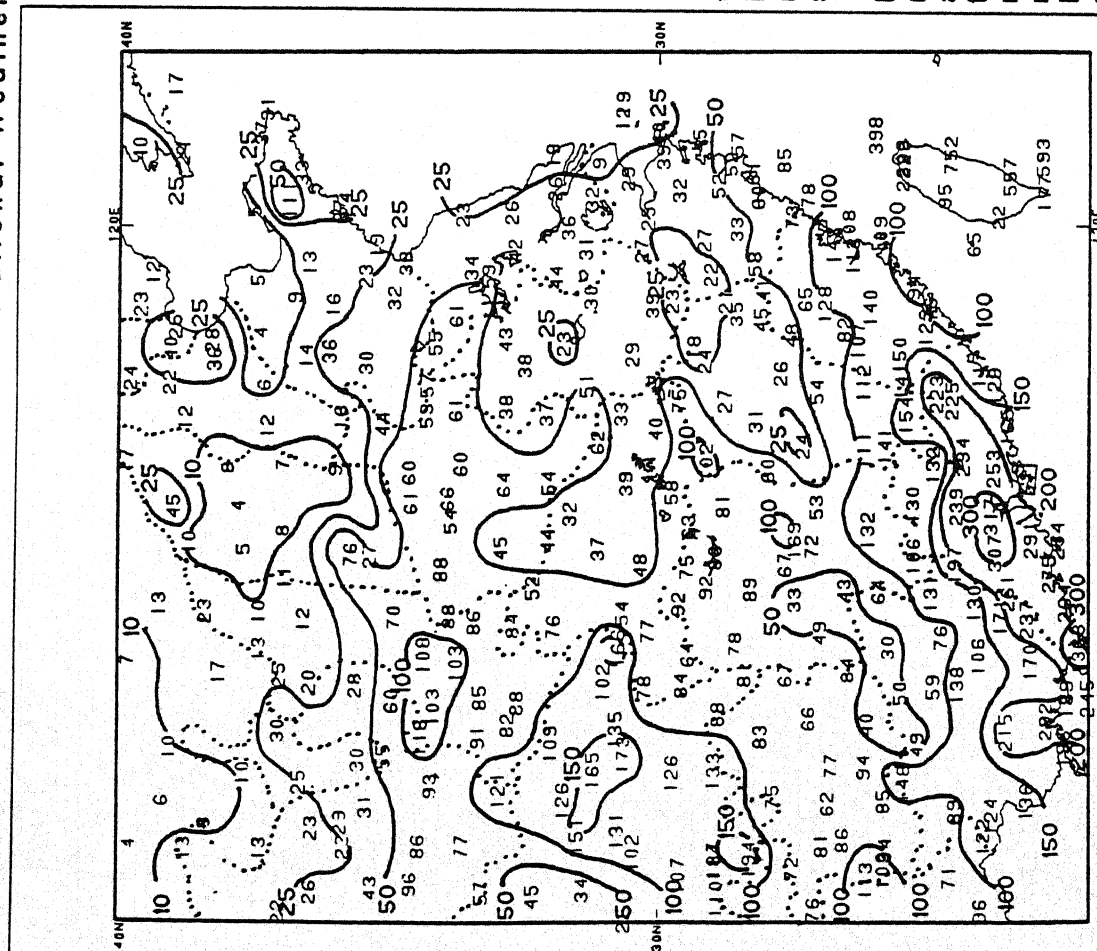


Figure 1. Total precipitation (mm) during Oct. 1 - Dec. 31, 1988. Many stations in east-central China have observed less than 50 mm over the past three months.

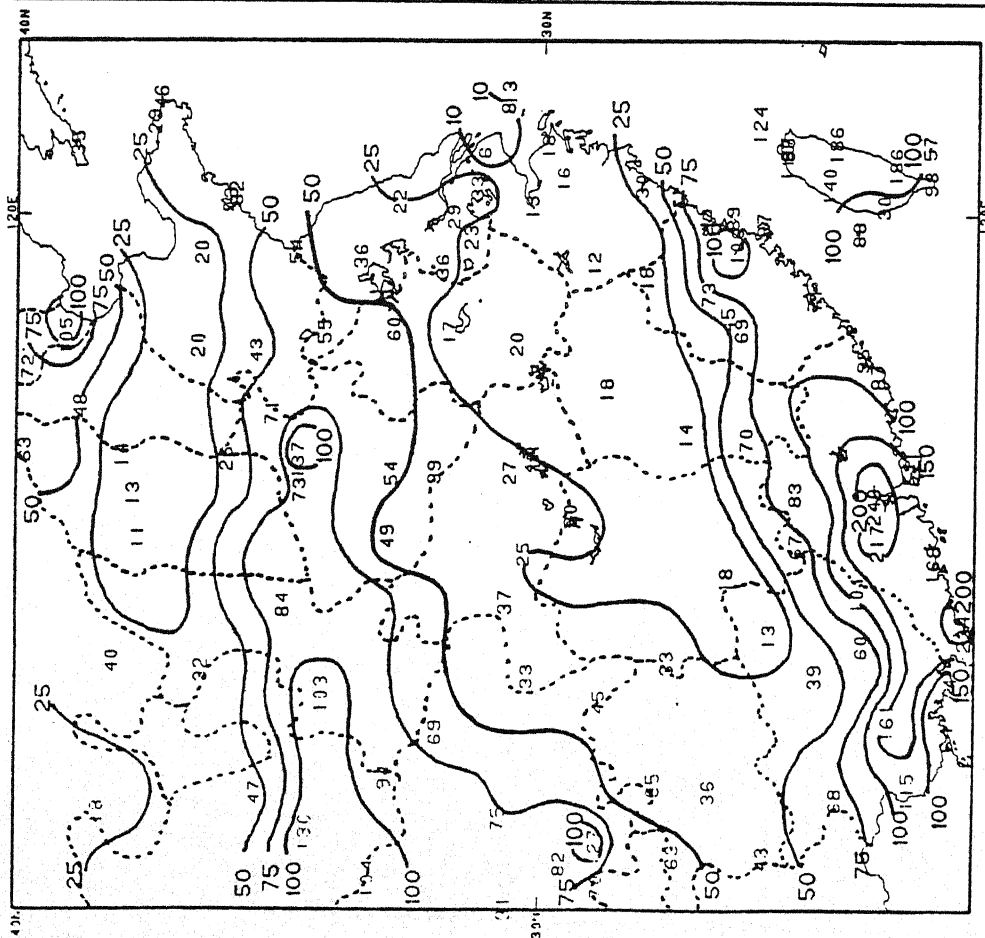


Figure 2. Percent of normal precipitation during Oct. 1 - Dec. 31, 1988. A vast majority of eastern China has received less than half the normal precipitation during the last three months of 1988.

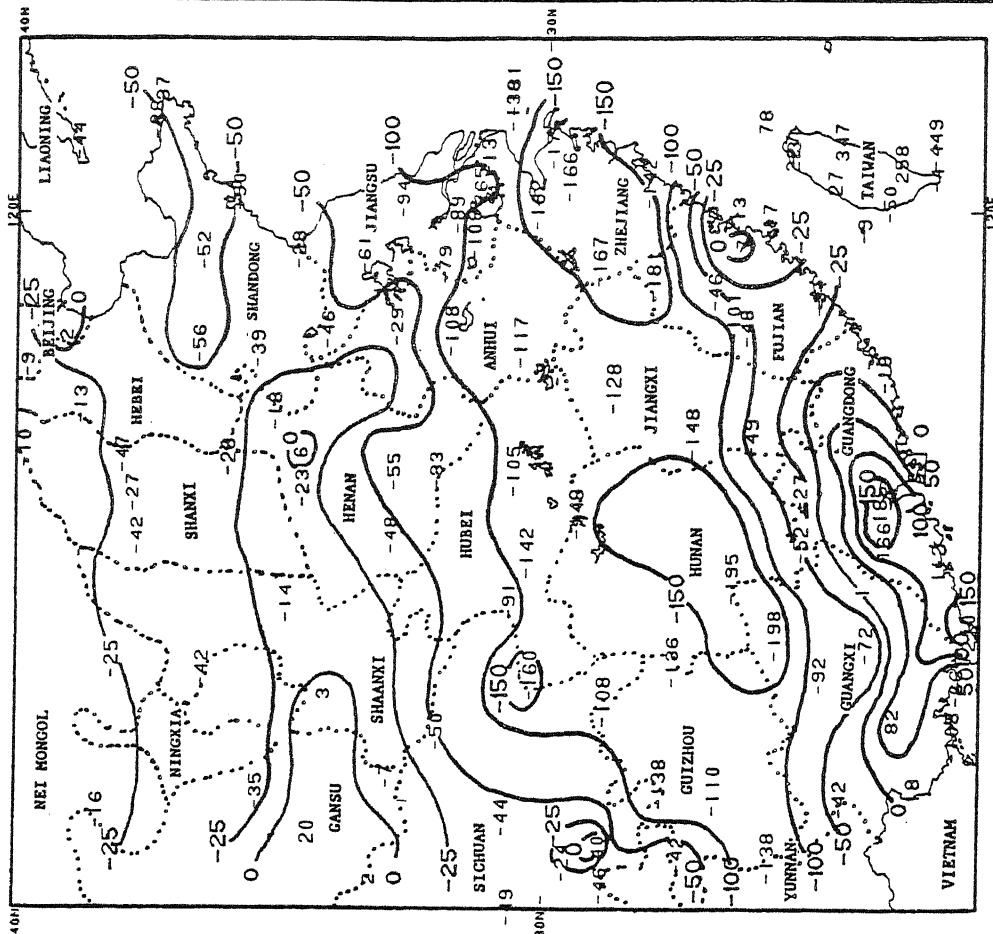


Figure 3. Departure from normal precipitation (mm) since October 1, 1988. Deficiencies have ranged from 25-50 mm in the normally drier northern provinces to as much as 198 mm in the normally wetter southern provinces.

